Decision Rationale
Total Maximum Daily Load
Phosphorus
Conneaut Lake
Crawford County, Pennsylvania

I. Introduction

This document will set forth the Environmental Protection Agency's (EPA) rationale for approving the Total Maximum Daily Load (TMDL) phosphorus for Conneaut Lake submitted by the Pennsylvania Department of Environmental Protection (PADEP) by letter dated March 2, 2001, and received by EPA on March 9, 2001. Our rationale is based on information provided[1] in the document which is used to determine if the TMDLs meets the following eight regulatory conditions as set forth in 40 CFR §130:

1) The TMDLs are designed to implement applicable water quality standards.
2) The TMDLs include a total allowable load as well as individual waste load allocations and load allocations.
3) The TMDLs consider the impacts of background pollutant contributions.
4) The TMDLs consider critical environmental conditions.
5) The TMDLs consider seasonal environmental variations.
6) The TMDLs includes a margin of safety.
7) There is reasonable assurance that the TMDLs can be met.
8) The TMDLs have been subject to public participation.

II. Background

Conneaut Lake is located in Summit and Sadsbury Townships, Crawford County, Pennsylvania. Conneaut Lake is the largest natural lake in Pennsylvania and provides a complete range of recreational activities including fishing, swimming and boating for area residents and visitors. Conneaut Lake has a surface area of approximately 947 acres, its protected use is a High Quality Warm Water Fishery (HQ-WWF) with secondary uses of recreation, as listed in 25 PA Code Chapter 93, Section 93.9q. The watershed surrounding Conneaut Lake is approximately 16,350 acres and is predominately forested (50%). Agriculture

[1] EPA considers supporting information which may be included in the submittal but not the TMDL document in determining our approval.

and developed lands each account for 15% of the land use in the watershed, with a significant amount of the developed land located on or near the lakeshore.

In recent years water quality problems, including excessive rooted aquatic plant growth and blooms of blue-green algae, have interfered with lake recreation. The cause of these problems have been attributed to elevated levels of nutrients in the lake. Excess nutrient loading, combined with localized sedimentation problems in areas near culverts, have resulted in limiting the lakes recreational use. EPA notes that this TMDL was developed specifically to restore the applicable designated use of recreation to Conneaut Lake. PADEP determined that the lake is meeting its aquatic life uses.

In response to the requirements in Section 303(d) of the Clean Water Act (CWA), PADEP listed Conneaut Lake in 1996 on Pennsylvania's Section 303(d) list of impaired waters as impaired due to excessive nutrients and total suspended solids (TSS). PADEP indicated the source of impairment on the Section 303(d) list as urban runoff/storm sewers, and 'other' non-point sources. The listing was based on information provided in the Phase One Diagnostic Feasibility Study performed on the Lake in 1994-1995. Section 303(d) and its implementing regulations require a TMDL to be developed for waters identified as impaired by the state where technology-based and other required controls will not provide for attainment of water quality standards. The TMDL submitted by PADEP is designed to determine the acceptable level of nutrient loading to the lake allowable to ensure that water quality standards and recreational uses are attained and maintained. PADEP has developed a TMDL for phosphorus[2]. The TMDL calls for a 40% reduction in phosphorus loading to the lake. It is expected this reduction will result in the attainment of water quality standards and full recreation use of the lake.

Table 1 below summarizes the elements of the TMDL for phosphorus that was developed for Conneaut Lake. According to Federal regulations at 40 CFR §130.2(g), load allocations are best estimates of the loading, which may range from reasonably accurate estimates to gross allotments, depending on the availability of data and appropriate techniques for predicting the loading**.** Tables 1 and 2 below summarize the elements of the TMDLs for phosphorus developed by PADEP.

[2] Refer to Section III, Part I for discussion of phosphorus as the limiting nutrient.

Table 1, Summary of Phosphorus TMDL (lbs/yr)

Parameter	TMDL[1]	WLA[2]	LA[3]	MOS[4]	Current Load	% Reduction
Phosphorus	4,630	0	4,481	149	7673	41.6

[1] Note that in the Conneaut Lake TMDL Report submitted to EPA by PADEP, the percent reduction was calculated using the existing load and the TMDL phosphorus. Comparing the existing loads with the load and wasteload allocations better reflects the actual reduction of loading to the lake. The percent reductions for phosphorus in Table 1 represent the actual percent reductions for the Conneaut Lake watershed.

[2] PADEP indicates there are no point source discharges in the Conneaut Lake watershed

[3] The Load Allocation consists of the TMDL target load minus the margin of safety

[4] The explicit MOS is calculated as 10% of TMDL goal minus the all-forest scenario load

Despite the fact that EPA believes that annual loads are appropriate for these TMDLs, for the sake of consistency we are breaking the annual loads down into daily loads. Table 2 below shows the loads in pounds per day.

Table 2, Breakdown of Annual TMDLs into Daily Loads (lbs/day)

Parameter	TMDL	WLA[1]	LA	MOS
Phosphorus	12.68	0	12.27[2]	0.41[3]

[1] Pennsylvania DEP indicates that there are no point sources in the Conneaut Lake watershed.

[2] The Load Allocation is the TMDL load minus the margin of safety

[3] The explicit MOS is calculated as 10% of the TMDL goal minus the all-forest scenario load

The TMDL is a written plan and analysis established to ensure that a waterbody will attain and maintain water quality standards. The TMDL is a scientifically-based strategy which considers current and foreseeable conditions, the best available data, and accounts for uncertainty with the inclusion of a 'margin of safety' value. Conditions, available data and the understanding of the natural processes can change more than anticipated by the margin of safety. The option is always available to refine the TMDL for re-submittal to EPA for approval. The Unassessed Waters Protocol, a method of conducting biological assessments of Pennsylvania's waters, was developed in 1996 and began implementation in 1997. PADEPs goal is to achieve a comprehensive, statewide assessment of surface waters in Pennsylvania. Additionally, as part of an on-going lake monitoring program to support the Unassessed Waters Protocol, EPA has monitored over 75 lakes. After completion of the initial assessments, the long-range goal is to reassess all waters on a five-year cycle. Therefore, while the TMDL should not be modified at the expense of achieving water quality standards expeditiously, the TMDL may be modified when warranted.

PADEP determined, and EPA concurs that a TMDL for Total Suspended Solids (TSS) is not warranted at this time. TSS concentration is a measure of water clarity and particulate matter in the water column. These particles are both organic and inorganic in form. The inorganic

components include sand, silt and clay, the organic component includes decaying plant materials and algae. The lake was listed on the 1996 Section 303(d) list for high concentration of TSS based on information in the Phase One Diagnostic Feasibility Study that found localized sedimentation problems near culverts. TSS concentrations and localized sedimentation are not equivalent impairments. This was an erroneous listing probably due to the listing of the water using established pollutant source and cause code classifications. There is no category for the type of localized sedimentation problems occurring in Conneaut Lake. TSS is not an equivalent description as it represents suspended solids affecting turbidity and clarity of water in the body of the lake. It does not account for problems of sediment accumulation. The Phase One Diagnostic Feasibility Study found the in-lake TSS concentration in Conneaut Lake to be generally less than 5mg/l in surface waters and averaged 13.8 mg/l in the hypolimnion during the summer stratification period. This concentration was not found to be impairing water quality or interfering with the designated uses of the lake. PADEP and EPA do not currently have water quality criteria for suspended solids. However, as stated in the TMDL, EPA research (Water Quality Criteria, 1972) suggests TSS concentrations at 25mg/l and below allow aquatic communities a high level of protection. The Department determined the data does not support the listing of Conneaut Lake as impaired by TSS. EPA believes that this justification is reasonable given the available information.

To help reduce accumulations in the culverts, the Department established reduction needs and source allocations for sediment. A TMDL is not possible at this time due to the lack of information on sediment accumulation in the majority of the lake. The estimates for sediment reductions are based on the best professional judgment of the Department's Northwest Regional Office staff familiar with the lake and the surrounding watershed. Best Management Practices installed to reduce nutrient loading from the watershed to the lake, will consequentially also reduce sediment loading. This is expected to reduce the localized sedimentation problems and minimize any transfer of sediment from these areas into the main body of the lake.

III. Discussion of Regulatory Conditions

EPA finds that the TMDL for phosphorus for Conneaut Lake meets the regulatory requirements of the CWA. Our approval is outlined according to the regulatory requirements listed below.

1) The TMDLs are designed to implement the applicable water quality standards.

Pennsylvania and EPA do not currently have numeric water quality criteria for nutrients (nitrogen or phosphorus). Therefore, Pennsylvania utilized its general water quality criterion, which states "water may not contain substances attributable to point or non-point source waste discharges in concentrations or amounts sufficient to be inimical or harmful to the water uses to be protected or to human, animal, plant, or aquatic life"[3]. To determine the amount of nutrient

[3] Pennsylvania Code, Title 25., Environmental Protection, Chapter 93. Water Quality Standards, Section 93.6(a).

reduction needed to restore full recreational use to Conneaut Lake, Pennsylvania utilizes Carlson's Trophic Status Index (TSI) as an indicator of water quality to assess the current conditions and nutrient loadings. Although nutrients, both nitrogen and phosphorus, are listed as the cause of impairment in Conneaut Lake, a TMDL for phosphorus was developed to control excessive algal blooms and restore water quality. PADEP identified phosphorus as the limiting nutrient in Conneaut Lake based on information in the Phase One Diagnostic Feasibility Study. Phosphorus is often the major nutrient in shortest supply and is frequently a prime determinate of the total biomass[4]. Phosphorus is also the most effectively controlled using existing engineering technology and land use management[5].

The water quality standard objective, to protect the recreational use of Conneaut Lake, is set by determining the allowable phosphorus load to the lake as indicated by the TSI. Based on current phosphorus loading, the TSI value of Conneaut Lake is 45.8, indicating the lake is currently bordering mesotrophic - eutrophic. The objective of the TMDL is to restore the lake to an improved mesotrophic status. As, discussed earlier, the TMDL was developed based on information provided in the 1995 Phase One Diagnostic Feasibility Study conducted on Conneaut Lake. PADEP determined this study to be the most reliable and comprehensive source of information available on Conneaut Lake. However, no substantial decline in water quality due to algal blooms was observed during the course of the study. The limited data on the mechanisms of algal blooms in Conneaut Lake limited the choices of approach available to PADEP for TMDL development. Multiple processes drive lake eutrophication, but the principal stimulant is an excess level of nutrients[6]. As a useful tool to gauge lake productivity and monitor changes over time, PADEP utilized TSI as an indicator of water quality. This allowed for an assessment of the current conditions and nutrient loadings, and an estimation of the amount of nutrient reduction needed to restore the designated uses of Conneaut Lake.

Pennsylvania's LAKE for windows program was used to determine the in-lake phosphorus concentration that would be expected with the TMDL target TSI level of 41.2. The target in-lake concentration (0.013 mg/l) was back calculated based on the target TSI. The Dillon-Rigler model was then used to predict the phosphorus load that would result with an in-lake phosphorus concentration of 0.013mg/l. PADEP estimated a 30-40% reduction in phosphorus loading would reduce blooms and restore the recreational uses of the lake. To allow for uncertainties in the data and the analysis, PADEP subtracted an additional 149 lbs/yr from the estimate. This 149 lbs/yr represents 10% of the difference between the TMDL goal and the load that would be expected from an all forest watershed (4630 lb./yr – 3139 lb./yr) *10% or 149 lb./yr. To determine this, PADEP converted all of the land uses to the equivalent of a forest

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[4] Modeling Phosphorus Loading and Lake Response under Uncertainty: A Manual and Compilation of Export Coefficients, 1980, EPA 440/5-80-011

[5] I.d.

[6] Modeling Phosphorus Loading and Lake Response under Uncertainty: A Manual and Compilation of Export Coefficients, 1980, EPA 440/5-80-011

loading by multiplying the forest loading runoff coefficient by the acreage in the various land use types. This is the quantity of phosphorus that might be exported to the lake from an undisturbed forested watershed, which PADEP considers a "best case" scenario. The target TSI, a 10% reduction from the current TSI, was determined based on several factors including model predictions of how Conneaut Lake would respond to various changes in phosphorus load, and the best professional judgment of PADEP Northwest Regional Office staff familiar with the lake and the watershed. Pennsylvania supplies the following justification for this action based on their use of the TSI as an indicator for the water quality of Conneaut Lake:

> "The scientific justification for the 20% change in allowable in-lake phosphorus concentration is based on relationships from Vollenweider-OECD eutrophication results by Lee and Jones (1982). These results indicated that a 20% change in the normalized phosphorus loading to a waterbody must occur before a change in the plankton algal chlorophyll concentrations due to a change in the phosphorus load would be discerned. These studies also indicated that the percent change that must occur in phosphorus load to produce a detectable change in water quality is independent of the trophic state of the waterbody. The 20% change in phosphorus concentration equates to an approximate 5% change in the lake Trophic Status Index (TSI)."

For Conneaut Lake, the model predictions indicated a phosphorus load reduction of 30% would be necessary to reduce the TSI by 10%. Because of the complexity of processes occurring in a large natural lake system such as Conneaut Lake and uncertainties in the TMDL analysis as discussed in the TMDL, PADEP recommends reducing the load by 40%, to add an additional margin of safety to the TMDL to ensure successful implementation.

EPA believes that this application is reasonable to determine the Conneaut Lake TMDL load given; 1) the goal of the TMDL to attain and maintain the recreational uses of the lake, 2) the lake history and current level of development in the watershed, and 3) the proposed levels of reduction to phosphorus loading. The overriding consideration of this TMDL should be the overall reduction of phosphorus loading to the lake by 40%.

2) The TMDLs include a total allowable load as well as individual waste load allocations and load allocations.

A) Wasteload Allocations

Pennsylvania indicates there are no point sources in the Conneaut Lake watershed. Therefore the WLA is set at zero.

B) Load Allocations

In order to determine the existing phosphorus loading to Conneaut Lake, PADEP utilized a simple land use area/loading coefficient method. Loadings were computed based on land use type and accepted land use runoff coefficients based on Reckow (1983) and those used for Phase One Diagnostic Feasibility Study conducted on Conneaut Lake. The coefficients, when multiplied by the number of acres, produce loads for the selected land use. The sum of these loads represents the existing watershed total phosphorus load to the lake. PADEP computed the existing TSI value and in-lake phosphorus concentration using the Dillon-Rigler model and the LAKES for windows program.

The determination of how the load allocation is distributed is at the discretion of PADEP. This process is established on a site-specific basis and considers several factors regarding ability to affect the pollutant loading processes. Practical feasibility, in addition to technical aspects are taken into account. According to the 1995 Phase One Diagnostic Feasibility Study, about 50% of the phosphorus loading to Conneaut Lake comes from watershed runoff. Based on field surveys conducted by PADEP during the development of this TMDL and discussions with stakeholders and the local conservation district staff, PADEP determined that several best management practices (BMPs) have been installed in the watershed since the study. Additionally, sanitary sewer overflows (SSOs) in the watershed have been contained. PADEP determined the regeneration of phosphorus from the bottom sediments remains a major source of phosphorus loading to the lake. As a result PADEP allocated large reductions to the internal load.

In the case of Conneaut Lake, the phosphorus load allocation process was based on attaining the TMDL of 4,630 lbs/yr of phosphorus. The TMDL load was then reduced by 149 lbs/yr to 4,481 lbs/yr to account for an additional margin of safety. A modified Equal Marginal Percent Reduction (EMPR)[7] method was employed to distribute the load allocation of 4,481 lbs/yr (4,630 lbs/yr – 149 lbs/yr = 4,481 lbs/yr) of phosphorus. The EMPR was performed on the watershed-based sources of phosphorus loading to the lake. The internal loading, for the reasons described above, was then allocated additional reductions. Table 3 below shows the load allocations of phosphorus in the Conneaut Lake watershed.

[7] Pennsylvania Department of Environmental Protection. June 1986. Implementation Guidance for the Water Quality Analysis Model 6.3. Document 391-2000-007.

Table 3, Summary of Load Allocations for the Phosphorus TMDLs

Landuse	Phosphorus lbs/yr						
	Acres	Existing Load	Baseline Reduction	Baseline Load	EMPR reduction	TMDL Load Allocation	TMDL % Reduction
Forest	8,766	1,564	--	--	--	1,564	--
Urban-residential	1,737	413	--	--	--	413	--
Urban-Commercial	289	413	0	413	274	274	34
Urban-other	24	7	--	--	--	7	--
Recreational	351	95	--	--	--	95	--
Harvested Crop	1,398	1,000	0	1,000	666	666	33
Hay/Pasture	1,201	322	0	322	214	214	--
Inactive Farmlands	1,390	247	--	--	--	247	--
Orchards	36	27	--	--	--	27	--
Transitional	113	31	--	--	--	31	--
Brush/scrub	106	29	--	--	--	29	--
Extractive Mining	91	131	0	131	88	88	33
Wetland	718	-161	--	--	--	-161	--
Forested Wetland	88	-20	--	--	--	-20	--
Ponds	45	-11	--	--	--	-11	--
Precipitation	--	351	--	--	--	351	--
Groundwater	--	214	--	--	--	214	--
Internal	--	3,021	--	--	--	453	85%
Total	16,352	7,673	0	1,866	1,242	4,481	40%

The EMPR method for phosphorus works in the following manner. Certain land use loadings are assumed to remain the same. These land uses often include forested, wetland, open water and waterfowl. These sources remain constant due to a very limited ability to affect the phosphorus loading processes or the fact that the land use acts as a sink for phosphorus. In the case of Conneaut Lake, the sources held constant are forested, urban-residential, urban-other, recreational, inactive farmland, orchards, transitional, brush/scrub, wetland, forested wetland, ponds, precipitation, and groundwater inputs. This is appropriate for forested land uses because phosphorus loading from undisturbed forested lands represent the natural condition that would be expected to exist. In other cases loads, certain land uses may be so small in comparison to the total loading and would not significantly improve water quality even if completely eliminated. Each of the remaining "active land use" current loads (urban commercial, harvested crop, extractive mining and hay/pasture) are compared with the remaining controllable load of 1,242 lbs/yr to determine if any contributor would exceed the load by itself. If the controllable load is exceeded, that contributor would be reduced to the controllable load of 1,242 lbs /yr. This is represented in Table 3 as the baseline load column. If the controllable load is not exceeded, the

current load is carried over to the baseline portion. In the case of Conneaut Lake, none of the land-based sources exceed the load by itself, therefore the current loads are carried over as the baseline load. The baseline loads from the "active land uses" are summed to allow for calculation of the equal percent reduction. For Conneaut Lake, the load of 1,242 lbs/yr is divided by the baseline load sum of 1,866 lbs/yr, which results in an approximate reduction of 33% to the baseline load. This reduction is then multiplied by the baseline loading for each "active land use" to determine the portion of the controllable load distributed to that land use. In Table 3, this corresponds to the column labeled EMPR. EPA believes that the method of allocating the controllable load to the land-based sources is acceptable.

3) The TMDLs consider the impacts of background pollutant contributions.

An important component of determining a TMDL is considering the background pollutant contributions that may be present in a waterbody. The state has included natural background as a component of the load allocations, as required by 40 CFR §130.2(g). The existing nonpoint source load for phosphorus was established based on information determined during the Phase One Diagnostic Feasibility Study through extensive monitoring of ambient water quality. The concentrations of the pollutants recorded, and the loadings determined based on land use represent both naturally-occurring and anthropogenic sources.

4) The TMDLs consider critical environmental conditions.

EPA regulations at 40 CFR 130.7(c)(1) require TMDLs to take into account critical conditions for streamflow, loading, and water quality parameters. The intent of this requirement is to ensure that the water quality of Conneaut Lake is protected during times when it is most vulnerable.

Critical conditions are important because they describe the factors that combine to cause a violation of water quality standards and will help in identifying the actions that may have to be undertaken to meet water quality standards. Critical conditions are the combination of environmental factors (e.g., flow, temperature, etc.) that result in attaining and maintaining the water quality criterion and has an acceptably low frequency of occurrence. In specifying critical conditions in the waterbody, an attempt is made to use a reasonable "worst-case" scenario condition. There are multiple critical conditions for lakes. In terms of loading wet periods are critical because storm events transport significant quantities of nonpoint source load to lakes during wet weather events. However, because there is generally a significant lag time between the introduction of sediment and nutrients to a lake during wet weather events, and the resulting impact on the protected uses of the lake in the form of algae blooms in the drier summer months, establishing the TMDL using annual loads that take into account both storm loads and wet weather loads is protective.

In order to effectively consider these critical times, PADEP used the loading coefficients from the Phase One Diagnostic Feasibility Study adjusted for characteristics specific to the

Conneaut lake watershed. Loading coefficients are derived on a yearly basis and are indicative of loadings experienced over an entire year including any high-flow events.

5) The TMDLs consider seasonal environmental variations.

Seasonal variations involve changes in stream flow as result of hydrologic and climatological patterns. In the continental United States, seasonal high flow normally occurs during the colder period of winter and in early spring from snow melt and spring rains, while seasonal low flow typically occurs during the warmer summer and early fall drought periods[8] Consistent with the discussion regarding critical conditions, expressing the load allocations as an annual basis using field-derived or accepted loading coefficients will account for seasonal variations.

6) The TMDLs include a margin of safety.

This requirement is intended to add a level of safety to the modeling process to account for any uncertainty. Margins of Safety may be implicit, built into the modeling process, or explicit, taken as a percentage of the waste load allocation, load allocation, or the TMDL. This accounts for uncertainty in the data and computational methodology used in the analysis. To determine the margin of safety, PADEP converted all of the land uses to an equivalent forest loading by multiplying the forest loading runoff coefficient by the acreage in the various land uses. This is quantity of phosphorus that might be exported to the lake from an undisturbed forested watershed, which is considered a "best case" scenario. The margin of safety is calculated as 10% of the difference between the TMDL goal and the all forest watershed (4630 lb./yr – 3139 lb./yr) *10% or 149 lb./yr. Additionally, PADEP increased the recommended reductions of phosphorus loading from the model prediction of a 30% to a 40% to add an additional assurance that the TMDL can be successfully implemented.

[8] Section 2.3.3 of the Technical Guidance Manual for Developing Total Maximum Daily Loads, Book 2, Part 1 (EPA 823-B-97-002, 1997).

7) There is reasonable assurance that the TMDLs can be met.

The reasonable assurance that the TMDL for Conneaut Lake will be met relies on the recommendations from the Phase One Diagnostic Feasibility Study. Table 4 is a list of projects that have either been completed or are scheduled to begin installation in the watershed.

Table 4. Completed /Projected Tasks

Tasks	Date Completed	Approximate Cost
Formation of CLAMA – Conneaut Lake Aquatic Management Association - guides restoration efforts	December 1995	$12,300
Lake and Watershed Monitoring	Almost every year this decade	$6,000
a. Chemical Weed Treatments	Every year since 1996	$12,063
b. Mechanical weed harvester purchase	May 1995	$144,797 PADEP state grant
c. O/M costs of harvester + barge	1999 by CLAMA	$26,969
Implement Agricultural BMPs	1994-1996	$5,700
Educational efforts – CLAMA newsletters, displays, fact sheets	To be spent by June 2000	$9,250
Dirt/gravel road dust control in Summit Twp., Crawford County	1999	$4,960

The TMDL discusses that all of the initial restoration efforts recommended by the lake study, with the exception of alum treatment, are being implemented. These non-point source control projects began after the study was completed in 1995 and assist in the implementation of the TMDL.

The TMDL targets phosphorus load reductions primarily from the internal load and discusses several controls that can or are being used to reduce it. Internal loading was weighted the heaviest for reductions in the TMDL because it is currently the primary source of phosphorus to the lake. It is important to note that although internal loading is a natural part of lake processes, the presence of excessive nutrients levels in the bottom sediments can ultimately be traced back to external sources. The lake has a history of SSO spills, which for years contributed phosphorus in a highly bio-available form to the lake. At the time of the study it was also estimated that agricultural lands contributed high amounts of phosphorus and sediment laden runoff to the lake. Based on PADEP determinations, these sources have since been largely reduced or eliminated. The Department estimates the implementation of BMPs will adequately control the remaining watershed sources including runoff from urban and mine lands. With the control of external sources, and the implementation of select BMPs to reduce the internal sources, it is expected that the internal regeneration of phosphorus from the bottom sediments will diminish over time.

Field surveys should be performed to assess both the extent of existing BMPs, and to determine the most cost-effective and environmentally protective combination of BMPs required to meet the nutrient reductions.

Funding for the types of projects described above include Pennsylvania's Growing Greener funding which has provided more than $65 million dollars to environmental initiatives through out the Commonwealth. Additionally, annual funding from the section 319 grant, supported by the Unified Watershed Assessment and the Watershed Restoration Action Strategies, is designed to focus resources towards the implementation of Best Management Practices for non-point source pollutants. Pennsylvania has staffed watershed coordinators in each Regional office who are available to provide grant application assistance to stakeholders as well as technical assistance on the installation of management practices.

8) The TMDLs have been subject to public participation.

Pennsylvania published a notice of availability of the Conneaut Lake TMDL for public review and comment in the *Pennsylvania Bulletin* on December 16, 2000 (Volume 30, number 51). A notice was also published in the local paper, *the Meadville Tribune*, on December 30, 2000. A public meeting was held on January 3, 2001 at the PADEP Northwest Regional Office in Meadville, Pennsylvania. The TMDL was also posted on the PADEP website. The public comment period extended 60days from December 16, 2000 to February 13, 2000. The Department received written comments from Allegheny College, Meadville Pennsylvania and the US EPA. EPA finds that PADEP addressed has sufficiently addressed our concerns and has PADEP conducted adequate public participation.